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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,063	04/16/2004	Yen-Chen Chen	LELI 3516	9976
321	7590	11/27/2007	EXAMINER	
SENNIGER POWERS ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			HOLTON, STEVEN E	
			ART UNIT	PAPER NUMBER
			2629	
			NOTIFICATION DATE	DELIVERY MODE
			11/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

Office Action Summary

Application No.

10/826,063

Applicant(s)

CHEN ET AL.

Examiner

Steven E. Holton

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 10-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 9/5/2007. Claims 1-9 are currently pending in the application, claims 10-18 are currently withdrawn. An action follows below:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (USPN: 4766676), hereinafter Inoue, in view of Pfeiffer et al. (USPN: 6717561), hereinafter Pfeiffer.

Regarding claim 1, Inoue discloses a method of driving a liquid crystal display device, the method of operation of the display device includes, "outputting an initial column signal to the corresponding column electrodes from the column driver, and outputting an initial row signal to the corresponding row electrodes from the row driver to initiate the corresponding pixel (Figs. 1b and 1c, 4-10; col. 3, line 61 – col. 4, line 9), wherein the initial column signal and the initial row signal are single polarity signals (Fig. 1b, the signals on elements V11 and V12), and the polarity of the initial column signal is in reverse to that of the initial row signal (Fig. 1b, the signal to V11 is opposite polarity of the signal to V12) so that an amplitude of an applied initial signal of the corresponding pixel is larger than the withstand voltage of the drivers, the applied initial signal of the

corresponding pixel being single polarity (Fig. 1b, the signal of V11-V12); and outputting a column address signal to the corresponding column electrodes from the column driver, and outputting a row address signal to the corresponding row electrodes from the row driver, wherein the column address signal and the row address signal are single polarity signals to control the corresponding pixel (Fig. 6, the signals on the column electrodes for the duration of a single frame are all one polarity opposite the polarity of the row electrodes)." The Examiner notes that the addition of the row and column electrode voltages as shown by Inoue could provide any voltage desired by the designers of a system. Thus, the sum of the two voltages could be greater or less than the withstand voltage of the driver circuitry as a matter of design choice for one skilled in the art. The selected row and column voltages would depend on the driving characteristics of the liquid crystal display being used and the power supply available to power the display device.

However, Inoue discloses the driving method of the display is drawn to a ferroelectric liquid crystal display and not a cholesteric liquid crystal display.

Pfeiffer disclose a passive matrix method of driving a cholesteric display that can also be formed using other suitable bistable liquid crystal display types. Pfeiffer discloses that the cholesteric display could be replaced with "any appropriate liquid crystal material, such as...ferroelectric (col. 3, lines 56-60)".

At the time of invention it would have been obvious to one skilled in the art to modify the ferroelectric display system of Inoue using the teachings of Pfeiffer. It is well known that both cholesteric and ferroelectric liquid crystal materials are bistable

materials. It would have been obvious that the driving method used for the bistable ferroelectric display device of Inoue could be modified to use another type of bistable liquid crystal material, such as a cholesteric liquid crystal material. Pfeiffer provides further teaching that one skilled in the art would be able to use either cholesteric or ferroelectric materials within a passive matrix liquid crystal display with only necessary optimization of the display system. Thus, it would have been obvious to one skilled in the art to replace the ferroelectric liquid crystal material of Inoue with a cholesteric liquid crystal material as suggested by Pfeiffer. It would have been a matter of design choice to select one of the types of bistable liquid crystal material to produce a device as disclosed in claim 1.

Regarding claims 2 and 4, Inoue discloses row signals that are both positive and negative square wave signals and similarly column signals that are negative and positive square wave signals (Figs. 1B and 1C). In the shown cases, Inoue uses a row signal that is opposite polarity of the column signal.

Regarding claims 3, 5, and 6, Inoue discloses the applied pixel voltage being the row signal minus the column signal (Fig. 1b and 1c, the signals V11-V12 and V21-V23). Inoue does not expressly disclose the applied initial signal having twice positive or twice negative amplitudes, but at the time of invention it would have been a matter of design choice for one skilled in the art to select different voltages to be applied to the row and column electrodes based on the characteristics of the liquid crystal display. Inoue has the ability to select different voltages for the signal electrodes and it would have been a

matter of design choice to choose row and column voltages equal to each other or not equal to each other depending on the characteristics of the liquid crystal display used.

Regarding claim 7, Inoue shows that the polarities of the row and column signals are known when driving the display device. Therefore, there must be a setting step before driving the pixels of the display that selects the polarities to be transmitted to the pixels. If there was no setting step between frame 1 and frame 2 of Fig. 6, Inoue would be unable to transmit different polarity signals to the different pixels based on the different frames.

Regarding claim 8, Inoue discloses switching the polarity of the column signals and the row signals (Fig. 6; the first frame uses set of polarities for row and column signals, the second frame uses the opposite polarities for row and column signals).

Regarding claim 9, Inoue discloses connecting the electrodes to a ground terminal (Fig. 6, time frames when an electrode is not being driven and is set to 0 volts). The setting of the electrodes to zero volts would discharge the voltages previously applied to the electrode.

Response to Arguments

3. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner agrees with the Applicant's arguments that Inoue discloses a display device that utilizes a ferroelectric liquid crystal material rather than cholesteric liquid crystal material. The Examiner has utilized the Pfeiffer reference to disclose that it is known in the art that bistable liquid crystal materials, such as ferroelectric and

cholesteric, can be substituted within display devices and only optimization of a display device would be needed based on the type of liquid crystal material selected for use in the display device. Thus, it would be a matter of design choice for one skilled in the art to replace the ferroelectric liquid crystal material used by Inoue with a cholesteric liquid crystal material or other suitable bistable liquid crystal material as described by Pfeiffer.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
November 20, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

